🔍 What is a Delimiter?

A **delimiter** is a **character or sequence of characters** used to **separate** distinct elements in a string, data, or structure.

📌 Think of it as a "separator" — just like punctuation marks in English:

In `Hello, world!`, the **comma** `,` and **exclamation** `!` are delimiters.

📚 1. Common Types of Delimiters (with Names, Symbols, and Examples)

Type	Symbol(s)	Name	Example	Meaning/Use
Comma	`,`	Comma delimiter	`apple,banana,grape`	CSV files, lists
Tab	`\t`	Tab delimiter	`apple\tbanana\tgrape`	TSV files (Tab-separated values)
Pipe	`	`	Pipe delimiter	`apple
Colon	`:`	Colon delimiter	`key:value`	Key-value pairs
Semicolon	`;`	Semicolon delimiter	`apple;banana;grape`	Command chains or alternate list separator
Space	(space)	Space delimiter	`apple banana grape`	Shell commands, simple lists
Hyphen / Dash	`-`	Dash delimiter	`apple-banana-grape`	Slugs, parameters
Newline	`\n`	Line break / newline	`line1\nline2`	End of line in text
Backslash	`\\` or `\`	Escape character	`\\n` (means newline in code)	Used to escape special characters
Slash	`/`	Forward slash delimiter	`path/to/file`	Directory structure
Equal sign	`=`	Equals delimiter	`a=10`	Assignments or key-value
Double Quote	`"`	String delimiter	`"Hello World"`	Denotes string in code
Single Quote	`'`	Single quote delimiter	`'Hello'`	Alternate for strings
Parentheses	`( )`	Grouping delimiter	`sum(a + b)`	Used in functions
Brackets	`[ ]`	List/index delimiter	`[1, 2, 3]`	Lists, arrays
Braces	`{ }`	Block delimiter	`{ x = y + z; }`	Code blocks
Angle Brackets	`< >`	Tag/HTML delimiter	`<title>Page</title>`	HTML/XML tags
Comma with space	`,`	Word delimiter	`John, Mary, Alex`	Better human-readable list

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🧠 2. How Delimiters Are Used in Paragraphs

In natural language, delimiters help **structure** content:

- **Punctuation** acts as delimiters:
  - Commas `,` separate ideas.
  - Periods `.` end a sentence.
  - Quotes `" "` isolate speech or text.

Example:

"Hello," she said. "Are you coming?"

- **Bullet points** or **numbering** act as visual delimiters in formatted documents.

🧑‍💻 3. How Delimiters Are Used in Computer Languages

Language/Area	Use of Delimiters
CSV/TSV files	Use `,` or `\t` to separate values
Programming	Use `{}` for blocks, `()` for functions, `;` to end lines
Shell scripting	Use `` ` ``
JSON	Uses `{}`, `[]`, `:` and `,` as structural delimiters
HTML/XML	Uses `<tag>` and `</tag>` as delimiters
Regex	Uses `/`, `\`, and `[]` as pattern delimiters
Databases (SQL)	Uses `,`, `;`, `'`, `"` to define queries and values

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🤖 4. How Prompt Engineering Interprets Delimiters

In **prompt engineering**, delimiters help **structure** input to guide the AI more clearly.

Use Case	Delimiter Example	Purpose
Separating sections	`###`, `---`, or `"""`	Tell the model where a section starts/ends
Code formatting	Triple backticks ```` ``` ````	Marks code blocks
Inline commands	Quotation `"like this"`	Clarifies the scope of a command
Lists	`-` or `*` for bullet points	Organizes information

Example Prompt:

```
python
CopyEdit
Summarize the following paragraph:
"""
The SWAT model is used to predict the impact of land management...
"""
```

Here, `"""` clearly separates the content from the instruction.

□ 5. Summary Table (Easy to Remember)

Delimiter	Symbol	Use Case
Comma	`,`	CSV, list separation
Tab	`\t`	TSV, aligned text
Pipe	`` ` ``	`` ` ``
Colon	`:`	Key-value, time, labels
Semicolon	`;`	End statements, multiple commands
Space		Word/command separator
Newline	`\n`	End of line
Quotes	`' "`	Strings
Slash	`/`	Paths, division
Backslash	`\`	Escape sequences
Parentheses	`()`	Function calls, order
Brackets	`[]`	Lists, indexing
Braces	`{}`	Code blocks
Angle Brackets	`< >`	HTML/XML tags
Equals	`=`	Assign values

☑ Conclusion

- **Delimiters** help **structure**, **separate**, and **organize** data and code.
- They're used across natural language, coding, file formats, and prompt design.
- Understanding them boosts clarity whether you're writing code, text, or prompts.